

## NATURAL RESOURCES CONSERVATION SERVICE CONSTRUCTION SPECIFICATIONS

### PEST MANAGEMENT

#### 1. Scope

Utilizing environmentally sensitive prevention, avoidance, monitoring and suppression strategies, to manage weeds, insects, diseases, animals and other organisms (including invasive and non-invasive species), that directly or indirectly cause damage or annoyance.

#### 2. Minimum Specifications

The following components shall be included in the pest management plan. Those items marked with an asterisk (\*) will be recorded as minimum documentation requirements.

- \*Document resource concerns, problems, and practice objective.
- \*Aerial photo, map, or sketch of the site.
- \*Extent in acres.
- \*Soil map of the site.

Soil type with the most limiting features will be used in evaluation of environmental impact of the pesticide management. (Note to planner: Field can be subdivided into subfields, if necessary, to provide improved planning options.)

- \*Landuse, Crop sequence/Rotation information.

The crop sequence or rotation should describe the sequence of crops for at least five years. Start with last year's crop and project the crop rotation for the next four years. Circle the current crop. In non cropland areas identify producer management decisions which mostly have contributed to pest development.

- \*Identify target pest(s)

Use field scouting and treatment thresholds to determine if pest controls should be used. The method used to determine treatment threshold will be documented in the conservation plan. Examples: No. of pests/ac; No. of pests/ft. of row length; No. of pests/plant; Stem Count decision method, etc.

- \*Identify the Pest Control method

**Cultural methods.** Cultural methods of pest control breaks the infestation cycle by making the environment less suitable for pest survival. This is accomplished by:

- Reducing favorable habitat of pests.
- Altering planting patterns to disrupt in time and space the food and other habitat resources required by the pest.
- Diverting mobile pests away from the crop.
- Enhancing the vigor of the crop that it can better tolerate pest injury.

**Biological controls.** Biological controls use living organisms (natural enemies) to suppress populations of other pests. These include:

- Predators - free living animals (insects, arthropods, birds, reptiles and mammals) that eat pests.
- Parasitoids - insect parasites of other insects. Most parasitoids are small wasps or flies.
- Pathogens - disease causing microorganisms, including viruses, bacteria, fungi, and nematodes.

**Mechanical control.** These include temperature manipulations, screens placed in irrigation ditches to reduce weed seed movement, insect traps, and frightening devices to repel birds and mammal pests. Mechanical control also includes tillage, rouging, and manual pulling of weeds.

**Host resistance.** Planting varieties tolerant of or resistant to pest attack is an economical and safe method of pest control.

**Chemical control.** Once the decision has been made to use a chemical pest control method, select a product based on its suitability to control the identified target pest.

- \*Product, rate, application method, timing and form

Select a pesticide for your crop and pest problem that is listed in the current pesticide guides provided by Kansas State University Cooperative Extension Service (2002 Chemical Weed Control for Field Crops, Pastures, Rangeland and Noncropland). The use of a professional crop consultant, trained in Integrated Pest Management (IPM) methods, is encouraged, especially in identified sensitive water quality areas. Do not apply pesticides that carry ground water warnings on the label to soils that are vulnerable to ground water contamination (Intermediate or High leaching potential). Post-emergence applications of pesticides should be discouraged immediately prior to anticipated rainfall to prevent surface water contamination and poor control of target pests. Avoid repetitive use of the same pesticide or pesticides of similar chemistry to reduce the potential for pesticide resistance development. Time pesticide applications in relation to present soil moisture and anticipated rainfall conditions. Irrigation should be managed to achieve greatest efficiency and reduce potential for offsite transport. Determine the method of application, such as ground or aerial spraying, wicking, granules, etc., this is important since application method impacts the degree of drift, volatilization, environmental hazard to surface and ground water and effectiveness to control target pest.

- Evaluate Environmental Impact of the Pesticide Management (*use when a water quality concern for pesticides is identified as a resource concern*)

The potential for pesticide pollution of surface and ground water will be minimized if pesticide characteristics and site characteristics are fully considered when making pesticide recommendations. Pesticide characteristics are: toxicity, water solubility, degradation, adsorption, efficacy and cost. Site characteristics are: soil texture, organic matter, geology, depth to water table, proximity to surface water, topography, climate, and carbonates. The Revised Universal Soil Loss Equation (RUSLE) will be used to determine soil loss risk. Use Windows-Pesticide Screening Tool Soil-pesticide interaction (WIN-PST) to evaluate environmental impact of the pesticide management alternatives. When a chosen alternative has significant potential to negatively impact important water resources (i.e. WIN-PST "Extra High, High, or Intermediate" soil/pesticide human risk rating or fish risk rating), an appropriate set of mitigation and management techniques MUST be in place to address risk to human and non-target aquatic, terrestrial plants, and wildlife.

- Mitigation and Management Techniques

Mitigation practices for minimizing groundwater contamination—leaching of a pesticide or associated metabolites are those practices that reduce or eliminate exposure or infiltration. Reduce pest resistance by using the lowest effective rate. Use tank mixtures and rotate pesticides to avoid use of pesticides with similar modes of action. Use split applications to reduce exposure of pesticide to the environment. Use spot or band treatments when possible in preference to whole field applications.

Mitigation practices for limiting surface water contamination—runoff of a pesticide or associated metabolite, including runoff of soil adsorbed pesticides, are those practices that minimize water runoff and soil erosion. These practices are residue management, crop rotation, irrigation water management, and filter or buffer strips. Protect water courses with grass buffer or filter strips to trap soilborne pesticides. Reduce pest resistance by using the lowest effective rate. Use tank mixtures and rotate pesticides to avoid use of pesticides with similar modes of action. Use split applications to reduce exposure of pesticide to the environment. Use spot or band treatments when possible in preference to whole field applications

- Operation, Safety, and Maintenance

The pesticide user must be fully trained and must obtain pesticide applicator certification to apply restricted use pesticides in Kansas. Information on obtaining this permit may be obtained from the local County Extension Service offices or the Kansas Department of Agriculture.

Read and follow directions. Take appropriate precautions to protect non-target organisms such as fish, honeybees, ornamental plants, and/or endangered species.

Calibrate application equipment before each seasonal use and with each major chemical change. Replace worn nozzle tips, cracked hoses, and faulty gauges.

Avoid exposure to pesticides. Wear protective clothing, respirator, gloves, and footwear according to label guidelines.

Accurately measure and mix all pesticides. Use only the amount needed to eliminate having to store or dispose of any excess. The use of chemical injector sprayer systems will help eliminate overruns.

Mix and load pesticides away from natural runoff areas and at least 300 feet away from wells, abandoned wells, creeks, ponds, natural watercourses, or ground water recharge areas.

Prevent back-siphoning of the pesticide mixture into water supply. When adding water to spray tanks, keep an air space between supply hose and top of spray tank or install an anti-backflow device on filler hose. When chemigating, user must follow all state and local laws.

Clean application equipment at a suitable site after each use. Rinse water should not flow off the cleaning site. This site should not be within 300 feet of wells, abandoned wells, creeks, ponds, natural watercourses, or ground water recharge areas.

Be sure that the person who is applying the pesticide knows some general information about the pesticide and the exact location of the area they are to treat.

Triple rinse containers or use equivalent method and empty the water used to rinse pesticide containers into the spray tank. Puncture the container to render it useless. Never drain leftover chemicals or rinse from equipment near or into ditches, streams, ponds or other water sources.

Avoid spray drift. Apply pesticides when wind speeds are below 8 to 10 MPH, and the wind direction is away from susceptible crops, trees, and farmsteads. Use correct pressure and spray volumes as defined on the label.

Check product label or Material Safety Data Sheet (MSDS) for field worker reentry times and strictly adhere to them. Material safety data sheets (MSDS) and pesticides labels may be accessed on the Internet at [www.greenbook.net/free.asp](http://www.greenbook.net/free.asp).

Dispose of leftover pesticide material and containers according to label requirements. Return unopened pesticide containers to the supplier and never reuse pesticide containers for any other purpose. High consideration should be given to chemical purchases that have returnable and reusable chemical containers. Disposal of waste material in unused wells, sinkholes, or other routes to ground or surface water are illegal and must be discouraged.

Store pesticides in the original labeled containers, preferably in a locked building with appropriate warning signs. Do not store or mix any closer than 300 feet to wells or other watercourses. When storage of pesticide storage, handling and mixing must be within 300 feet of wells and surface watercourses, anticipate accidents and provide protection. Have a lined collection and containment area for any spills and leaks that may occur.

### **3. Recording Procedure**

The minimum specifications for this practice will be recorded in the conservation plan narrative, appropriate job sheet or the conservation assistance notes.